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WRITTEN OPINION

(PCT Rule 66)

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20 APR 1995

Applicant's or agent's file reference TCOM1009(WO)		REPLY DUE	within TWO months from the above date of mailing
International application No. PCT/US93/12652	International filing date (day/month/year) 28 DECEMBER 1993	Priority date (day/month/year) 02 FEBRUARY 1993	
International Patent Classification (IPC) or both national classification and IPC IPC(6): G06F 13/24 and US Cl.: 395/275			
Applicant 3COM CORPORATION			

1. This written opinion is the first (first, etc.) drawn by this International Preliminary Examining Authority.
2. This opinion contains indications relating to the following items:

- I  Basis of the opinion
- II  Priority
- III  Non-establishment of opinion with regard to novelty, inventive step or industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

3. The applicant is hereby invited to reply to this opinion.

When? See the time limit indicated above. The applicant may, before the ~~expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).~~

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For an additional opportunity to submit amendments, see Rule 66.4. For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis. For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 02 JUNE 1995

HAYNES & DAVIS

PATENT DOCKET

DOCKETED: 4-24-95 BY: KCC

ACTION: Response

DUE DATES:

1 mo: 5-20-95

2 mo: 6-20-95 Final

TCOM 1009(WO) MA11

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**I. Basis of the opinion**

1. This opinion has been drawn on the basis of (*Substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed".*):

the international application as originally filed.

the description, pages 1-68, as originally filed.  
pages NONE, filed with the demand.  
pages NONE, filed with the letter of \_\_\_\_\_.

the claims, Nos. 1-21, as originally filed.  
Nos. NONE, as amended under Article 19.  
Nos. NONE, filed with the demand.  
Nos. NONE, filed with the letter of \_\_\_\_\_.

the drawings, sheets/fig 1-18, as originally filed.  
sheets/fig NONE, filed with the demand.  
sheets/fig NONE, filed with the letter of \_\_\_\_\_.

2. The amendments have resulted in the cancellation of:

the description, pages NONE

the claims, Nos. NONE

the drawings, sheets/fig NONE

3.  This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the **Supplemental Box** Additional observations below (Rule 70.2(c)).

4. Additional observations, if necessary:

NONE

**V: Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. STATEMENT**

Novelty (N)	Claims <u>1-21</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>14-16 AND 18-21</u>	YES
	Claims <u>1-13 AND 17</u>	NO
Industrial Applicability (IA)	Claims <u>1-21</u>	YES
	Claims <u>NONE</u>	NO

**2. CITATIONS AND EXPLANATIONS**

I. Claims 1-7 lack an inventive step under PCT Article 33(3) as being obvious over Akashi (4,847,752).

i. In figures 1-2, Akashi teaches the claimed structures as follows:

Claim 1 Akashi (figs 1-2).

- first mask logic & memory location - (10 & 50)

- second mask logic & memory location - (10 & 50)

- interrupt means - (40-60)

- host - (20)

Claims 2-7 Akashi (figs 1-2)

- writing mask data limitations - See Col 4, lines 42-47

ii. The main difference between the claimed structures and Akashi reference is that the reference does not expressly disclose the host system environment; however, the difference is an obvious design choice matter from the teachings of Akashi's system. As claimed, an interrupt managing/handling system is a basic and necessary part of any computer system, and a system or technique for notifying/indicating interrupts/conditions are well known and required by computer systems; as a result, one of ordinary skilled artisan can easily be motivated to utilize such well known required part of the system in the host oriented system. Therefore, it would have been obvious at the time the invention was made to one having ordinary skill in the art to utilize such well known technique, as taught by Akashi, in the claimed system for the reasons stated above.

II. Claims 8-9 lack an inventive step under PCT Article 33(3) as being obvious over Akashi (4,847,752) in view of Fukasawa et al. (4,349,872).

i. Teachings of the parent claims 1 and 5-6 have been discussed above; therefore, it will not be repeated.

ii. Claims 8-9 further add internal structures of the mask logic unit; however, such limitation is no more than a common knowledge in the art; as evidence, Fukasawa reference, in (Continued on Supplemental Sheet.)

### VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 1-21 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because the claims indefinite for the following reason(s):

a) In claim 1, in terms of managing and generating an interrupt signal, it is unclear as to how the reception or disabling or the indication signal are functionally interrelated to the indication value and interrupt value. How are the first and second mask logic, other than disabling the indication signal and value, being utilized by the claimed system/interrupt means in terms of generating an interrupt signal to the host.

b) In claims 2-4 and 11, the phrase "may be" is vague and indefinite as being a broad range or limitation followed by linking terms (e.g., preferably, maybe, for instance, especially) and a narrow range or limitation within the broad range or limitation is considered indefinite since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired.

c) In claims 5-7, the structural cooperative rejections of the claimed elements are unstated and unclear (i.e., the input and/or output couplings or connections have not been fully or properly detailed):

- (1) first & second masks
- (2) first & second mask logic
- (3) first & second mask memories
- (4) host
- (5) first & second memory locations
- (6) interrupt means
- (7) indication value
- (8) interrupt value
- (9) interrupt signal

d) In claim 7, lines 1-2, the intended meaning of "characterized by" is unclear from the context of the claim.

e) In claim 10;

1) In lines 4 and 7, it is unclear as to how the "individual indication signals" are functionally related to the "subset of the plurality of indication signals" (i.e., does not indication mask logic further disables the subset of the indication signals ?).

2) In lines 6-12, it is unclear as to how the "indication mask logic", "indication memory location", and "interrupt mask logic" are utilized by the claimed system in terms of managing interrupt service and indication signals.

f) In claim 17;

1) In lines 6 and 11, it is unclear as to how the "individual indication signals" are functionally related to the "subset of the plurality of indication signals" (i.e., does the indication mask logic further disables the subset of the indication signals ?).  
(Continued on Supplemental Sheet.)

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

**TIME LIMIT:**

The time limit set for response to a Written Opinion may not be extended. 37 CFR 1.484(d). Any response received after the expiration of the time limit set in the Written Opinion will not be considered in preparing the International Preliminary Examination Report.

**V. 2. REASONED STATEMENTS - CITATIONS AND EXPLANATIONS (Continued):**  
figures 2 and 3, teaches such common knowledge.

Since Akashi and Fukasawa references are from the same field of endeavor, the purpose/common knowledge disclosed by Fukasawa would have been recognized in the pertinent art of Akashi.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize such common knowledge, as taught by Fukasawa, in the Akashi's system for the reasons stated above.

**III.** Claims 10-13 and 17 lack an inventive step under PCT Article 33(3) as being obvious over Jibbe et al. (5,179,704).

i. As best understood by the examiner, due to the numerous unclarities and indefiniteness of the claims, the claimed invention read on the teachings of the Jibbe reference as follows:

Claims 10-11,13,17Jibbe (figs 4-6).

- indication signals - (401-408)
- host - figs 1, (21,51)
- counter mask logic - (120, 140, 530)
- indication memory/mask logic - (430, 530)
- interrupt memory/mask logic - (430, 530)
- interrupt means - figs 3, output of (190)
- Claims 11-12 Jibbe (figs 4-6)
- first/second registers - fig 6, (430 & 530)

ii. The main difference between the claimed invention and teachings of the reference is that the reference does not expressly disclose the limitation regarding the host interrupt service routine/subroutine for controlling the interrupt mask. However, such limitation is obvious from the teachings of Jibbe because Jibbe reference does teach/show "PROCESS WRITE INTERRUPT MASK 1" & "PROCESS WRITE INTERRUPT MASK 2" (fig 4A & 5D) for controlling the interrupt mask registers (430 & 530). Furthermore, having interrupt service routine or subroutine for controlling or making interrupt is a common knowledge at the time of the invention. Therefore, it would have been obvious at the time the invention was made to one having ordinary skilled in the art to utilize such well known common known knowledge (e.g., interrupt service routine/subroutine for controlling/making interrupt) for the well known purpose of controlling interrupt, as stated above.

**IV.** Claims 14-16 and 18-21 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest the claimed combination details.

**----- NEW CITATIONS -----**

US, A, 5,179,704 (JIBBE ET AL.) 12 JANUARY 1993, See entire document (figures 4-6).

**VIII. CERTAIN OBSERVATIONS ON THE APPLICATION (Continued):**

- 2) In lines 16 and 24, the phrase "may be" is vague and indefinite as being a broad range or limitation followed by linking terms (e.g., preferably, may be, for instance, especially) and a narrow range or limitation within the broad range or limitation is considered indefinite since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired.
- 3) In lines 10-21, it is unclear as to how the "indication mask logic", "indication memory location", and "interrupt mask logic" are utilized by the claimed system in terms of managing interrupt service and indication signals.

- g) In claim 18, lines 4 and 6, the terms "register" lacks proper and clear antecedent basis.
- h) In claim 19, line 1, the term "first register" lacks proper and clear antecedent basis.

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 11

i) Claim 21, due to the similarity between the claims, the unclarities of the claim 17 are similarly applied.